
(Slip Opinion)

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**BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.**

_____)	
In re:)	
)	
Commonwealth Chesapeake Corp.)	PSD Appeal Nos.
)	96-2, 96-3, 96-4 & 96-5
PSD Permit No. 001-00030)	
_____)	

[Decided February 19, 1997]

ORDER DENYING REVIEW

***Before Environmental Appeals Judges Ronald L. McCallum,
Edward E. Reich and Kathie A. Stein.***

COMMONWEALTH CHESAPEAKE CORP.

PSD Appeal Nos. 96-2, 96-3, 96-4 & 96-5

ORDER DENYING REVIEW

Decided February 19, 1997

Syllabus

Four private citizens have petitioned the Board for review of a prevention of significant deterioration (PSD) permit and approval to construct issued by the Commonwealth of Virginia's Department of Environmental Quality (VDEQ) to Commonwealth Chesapeake Corporation (CCC), pursuant to Clean Air Act § 165, 42 U.S.C. § 7475. The permit authorizes CCC to construct a "peaker power plant" in Accomack County, Virginia, in proximity to two Clean Air Act Class II areas: the Assateague Island National Seashore and the Chincoteague National Wildlife Refuge. The plant will consist of three 132.5-megawatt simple cycle combustion gas turbines and three 3.5 million gallon distillate oil storage tanks. The plant is designed to operate during periods of peak demand for electricity. Petitioners are residents of Accomack County who oppose construction of the plant, alleging that: (1) air emissions from the facility and other effects of plant operation will harm human health and the ecosystem in the surrounding communities; (2) the plant will cause visible plumes to form in the nearby Class II areas, and VDEQ erred in not requiring high-temperature selective catalytic reduction (SCR) as the "best available control technology" (BACT) for the plant in order to prevent plume formation; (3) the plant will contribute to acid rain formation; and (4) the plant will have other negative impacts unrelated to air quality, such as depletion of groundwater resources, conversion of agricultural land, and excessive noise.

Held: The Board has determined that one petitioner lacks standing to petition for review of the permit because he failed to participate in the public hearing or provide comments on the draft permit, and therefore that petition must be dismissed. With respect to the remaining three petitions, the Board concludes that petitioners have not met their burden of showing that VDEQ's decision should be reviewed. First, petitioners' general allegations that emissions from the plant and other effects of plant operation will pose unreasonable risks to human health and the environment do not provide sufficient specificity or supporting information from which the Board could conclude that VDEQ clearly erred in issuing the permit. Further, the record shows that VDEQ analyzed the air emissions expected from the plant, and concluded that the emissions are not of sufficient magnitude to lead to the adverse effects claimed by petitioners. Second, VDEQ did not err in selecting water injection rather than SCR as BACT for the control of nitrogen oxides (NOx) emissions. The record shows that SCR

is not a cost-effective control option for this plant, because the incremental cost of installing SCR technology is over \$8500 per ton of additional NO_x removed, whereas the only other comparable plant required to utilize the SCR technology under consideration did so at an incremental cost of approximately \$2200 per ton. Petitioners offered no specific information that suggests this analysis is erroneous, either by showing the the \$8500 per ton cost as calculated by VDEQ is overstated or is within the range of control costs borne by similar sources. Further, although VDEQ was not required to perform a formal visibility analysis, it did consider visibility impacts in the Class II areas. VDEQ concluded that visible plumes were not likely, because of the permit's 10% opacity limit and because of an anticipated overall NO_x emissions reduction due to the fact that the plant will provide electricity presently provided by more-polluting facilities. Third, VDEQ did not err in rejecting petitioners' claim that the plant will significantly contribute to acid rain formation. VDEQ concluded that the plant will emit NO_x and sulfur dioxide (acid rain precursors) in amounts far below those regulated under the acid rain provisions of the Clean Air Act, and petitioners have failed to explain why the State's response to this issue is clearly erroneous. Fourth, VDEQ did not err in rejecting petitioners' arguments that the plant will have negative non-air quality impacts. As to groundwater impacts, VDEQ deferred to a State process for issuing groundwater withdrawal permits. As to other impacts (such as land use considerations and noise), VDEQ deferred to a State policy pursuant to which such impacts are considered in local planning and zoning processes. To the extent VDEQ has the discretion to consider non-air quality related impacts in issuing PSD permits, it was not clear error in this instance for it to defer to State procedures and policies. For these reasons, the petitions for review are denied.

***Before Environmental Appeals Judges Ronald L. McCallum,
Edward E. Reich and Kathie A. Stein.***

Opinion of the Board by Judge Reich:

I. Background

We have consolidated for decision four petition s seeking review of a decision of the Commonwealth of Virginia's Department o f Environmental Quality (VDEQ) granting a final prevention o f significant deterioration (PSD) permit and approval to construct t o Commonwealth Chesapeake Corpora tion (CCC), pursuant to Clean Air

Act § 165, 42 U.S.C. § 7475.¹ The permit authorizes CCC to construct a "peaker power plant," *i.e.*, a generating station to provide electricity to utilities during periods of peak demand for electrical power. The facility will be constructed in Accomack County, Virginia, on a site approximately 160 kilometers east of Shenandoah National Park, a "Class I" area administered by the National Park Service, and approximately 18 kilometers west of the Assateague Island National Seashore and the Chincoteague National Wildlife Refuge, both of which are "Class II" areas.² The facility will consist of three 132.5-megawatt simple cycle combustion gas turbines and three 3.5 million gallon distillate oil storage tanks. The turbines will combust distillate oil with a maximum sulfur and nitrogen content of 0.05% each by weight. The conditions of the permit limit operation of each turbine to 2000 hours per year (meaning that if all turbines are operated simultaneously, the facility could operate for no more than 2000 hours per year). Permit Condition 10. The permit further provides that, out of the 2000 hour limit, no turbine, or combination of turbines, can operate at peak operating load (*i.e.*, 132.5 megawatts) for more than 500 hours per year. *Id.*³

¹VDEQ administers the PSD program in Virginia pursuant to a delegation of authority from U.S. EPA Region III. Because Virginia acts as EPA's delegate in implementing the federal PSD program under the delegation agreement, the permit is considered an EPA-issued permit for purposes of federal law, and is subject to review by the Board pursuant to 40 C.F.R. § 124.19. *In re Hadson Power 14--Buena Vista*, 4 E.A.D. 258, 259 (EAB 1992); *see also In re West Suburban Recycling and Energy Center, L.P.*, PSD Appeal Nos. 95-1 & 96-1, slip op. at 5 n.4 (EAB, Dec. 11, 1996), 6 E.A.D. ____ ("For purposes of Part 124, a delegate State stands in the shoes of the Regional Administrator [and must] follow the procedural requirements of Part 124. *** A permit issued by a delegate is still an "EPA-issued permit" ***.") (quoting 45 Fed. Reg. 33,413 (May 19, 1980)).

²Comments of the U.S. Department of the Interior, National Park Service, on CCC draft permit issued by VDEQ (Dec. 7, 1995) (hereafter "NPS Comments"). The significance of these classifications is discussed *infra*, Part II.A.

³VDEQ has explained that:

(continued...)

The petitioners are residents of Accomack County who oppose construction of the facility.⁴ The petitions for review collectively raise numerous objections to VDEQ's decision to allow construction of the facility. Petitioners' objections relate primarily to alleged negative impacts that emissions from the facility will have on the health of the residents in the surrounding communities, and alleged negative impacts on the environment, including the Assateague Island National Seashore and the Chincoteague National Wildlife Refuge.

At the Board's request, VDEQ submitted responses to each of the petitions for review, together with relevant portions of the administrative record relied upon by VDEQ in reaching its decision. VDEQ argues that one petitioner, William Reese, lacks standing to petition for review of VDEQ's permit decision. VDEQ argues that the remaining three petitions fail to meet the standards necessary to invoke Board review of its decision, as set forth at 40 C.F.R. § 124.19. For the reasons explained below, we agree and must therefore deny the petitions.

³(...continued)

The proposed CCC project is designed to respond quickly to peak demands for electricity. Simple cycle combustion turbines can be brought up to full load quickly and turned off quickly as demand subsides, making this kind of operation the appropriate response to peak demands for electricity.

Engineering Analysis for CCC PSD Permit Application at 7 (May 21, 1996) (hereafter "Engineering Analysis").

⁴The petitioners are: Elizabeth Trader (Petition No. 96-2); Dorothy Bonney (Petition No. 96-3); Marvel Wimbrow (Petition No. 96-4); and William Reese (Petition No. 96-5).

II. Discussion

A. Statutory Background

The Clean Air Act's PSD program serves to regulate air pollution in areas (known as "attainment" areas) where air quality meets or is cleaner than the national ambient air quality standards (NAAQS), as well as areas that cannot be classified as "attainment" or "non-attainment" areas ("unclassifiable" areas). Clean Air Act § 160 *et seq.*, 42 U.S.C. § 7470 *et seq.*; see *In re Masonite Corp.*, 5 E.A.D. 551, 552 n.1 (EAB 1994). The NAAQS define levels of air quality (in terms of the concentration of certain regulated pollutants in the ambient air) "which the Administrator judges are necessary, with an adequate margin of safety, to protect the public health." 40 C.F.R. § 50.2(b).⁵ The NAAQS represent "ceilings" on the maximum concentration of such regulated pollutants. New Source Review Workshop Manual at C.3 (hereafter "Draft Manual").⁶

The goals of the PSD program are:

(1) to ensure that economic growth will occur in harmony with the preservation of existing clean air resources; (2) to protect the public health and welfare from any adverse effect which might occur even at air pollution levels better than the [NAAQS]; and (3) to preserve, protect, and enhance the air quality in areas

⁵NAAQS have been set for six criteria pollutants: sulfur dioxide, particulate matter, nitrogen oxides, carbon monoxide, ozone, and lead. See *id.* §§ 50.4-50.12 (primary and secondary NAAQS for criteria pollutants).

⁶The New Source Review Workshop Manual is a draft document issued by EPA's Air Quality Management Division in October 1990. It was developed for use in conjunction with new source review workshops and training, and to guide permitting officials. Although it is not accorded the same weight as a binding Agency regulation, it has been looked to by this Board as a statement of the Agency's thinking on certain PSD issues. See *Masonite Corp.* 5 E.A.D. 551, 558 n.8.

of special natural recreational, scenic, or historic value, such as national parks and wilderness areas.

Draft Manual at C.5. To that end, the PSD regulations at 40 C.F.R. § 52.21 require, among other things, that new major stationary sources of air pollution and major modifications of such sources be carefully reviewed prior to construction to ensure that emissions from such facilities will not cause exceedance of the NAAQS or applicable PSD ambient air quality "increments". 40 C.F.R. § 52.21 *et seq.* A PSD "increment" refers to "the maximum allowable *increase* in concentration that is allowed to occur above a baseline concentration for a pollutant." Draft Manual at C.3; 40 C.F.R. § 52.21(c) (setting forth increments for regulated pollutants).

The size of a PSD increment depends upon the classification of the area within which a new source is proposed to be built or modified. *See* 40 C.F.R. § 52.21(c). As the EPA has explained:

The PSD requirements provide for a system of area classifications which affords States an opportunity to identify local land use goals. There are three classifications. Each classification differs in terms of the amount of growth it will permit before significant air quality deterioration would be deemed to occur. Class I areas have the smallest increments and thus allow only a small degree of air quality deterioration. Class II areas can accommodate normal well-managed industrial growth. Class III areas have the largest increments and thereby provide for a larger amount of development than either Class I or Class II areas.

Draft Manual at C.4-C.5.

Parks and wilderness areas were initially designated as "Class I" or "Class II" depending upon size. *See* Clean Air Act § 162, 42

U.S.C. § 7472.⁷ Parks and wilderness are as that are designated as Class I areas under the Clean Air Act are entitled to enhanced protection s under the PSD program. *See In re Hadson Power*, 4 E.A.D. at 260-61; *In re Old Dominion Electric Cooperative*, 3 E.A.D. 779, 780 (Adm'r 1992). In particular, the Clean Air Act requires that written notice of a proposed PSD permit be provided to the Federal Land Manager (FLM) for a Class I area that may be affected by emissions from the proposed facility. CAA § 165(d)(2)(A), 42 U.S.C. § 7475(d)(2)(A). In this instance, VDEQ provided notice of the proposed permit to the National Park Service as the FLM for the Shenandoah National Park. The Class II areas at issue here, Assateague Island National Seashore and the Chincoteague National Wildlife Refuge, are managed by the National Park Service and the U.S. Fish and Wildlife Service, respectively.

Among other requirements, and of importance to this appeal, the PSD regulations require that new major stationary sources and major modifications of such sources employ the "best available control technology" (BACT) to minimize emissions of regulated pollutants. 42 U.S.C. § 7475(a)(4); 40 C.F.R. § 52.21(j)(2). BACT is defined in part as follows:

[BACT] means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under [the] Act which would be emitted from any proposed major stationary source or major

⁷The CAA provides that the following parks in existence on August 7, 1977, are Class I areas that may not be redesignated:

- (1) international parks,
- (2) national wilderness areas which exceed 5,000 acres in size,
- (3) national memorial parks which exceed 5,000 acres in size, and
- (4) national parks which exceed six thousand acres in size[.]

CAA § 162(a), 42 U.S.C. § 7472(a). All other "attainment" or "unclassifiable" areas were initially designated "Class II" areas. *Id.* § 162(b), 42 U.S.C. § 7472(b).

modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

40 C.F.R. § 52.21(b)(12).

B. Standard of Review

Under the regulations that govern the Board's review of PSD permit decisions, a PSD permit decision will ordinarily *not* be reviewed unless the decision is based on either a clearly erroneous finding of fact or conclusion of law, or involves an important matter of policy or exercise of discretion that warrants review. 40 C.F.R. § 124.19(a); *see In re Masonite Corp.*, 5 E.A.D. at 557. The preamble to § 124.19 states that the Board's power of review "should be only sparingly exercised," and that "most permit conditions should be finally determined at the Regional [State] level * * *." 45 Fed. Reg. 33,412 (May 19, 1980). The burden of demonstrating that review is warranted rests with the petitioner who challenges the permit decision. *See* 40 C.F.R. § 124.19(a); *In re Envotech, L.P.*, UIC Appeal Nos. 95-2 through 95-37, slip op. at 6 (EAB Feb. 15, 1996), 6 E.A.D. ____; *Masonite Corp.* at 557. The Board has explained that in order to establish that review of a permit is warranted, § 124.19(a) requires a petitioner to both state the objections to the permit that are being raised for review, and to explain why the permit decision maker's previous response to those objections (*i.e.*, the decision maker's basis for the decision) is clearly erroneous or otherwise warrants review. *In re Puerto Rico Electric Power Authority*, PSD Appeal No. 95-2, slip op. at 3 (EAB, Dec. 11, 1995), 6 E.A.D. ____; *In re Genesee Power Station L.P.*, 4 E.A.D. 832, 866 (EAB 1993). The foregoing regulatory scheme "provides the yardstick against which the Board must measure" petitions for review of PSD and other permit decisions. *See Envotech, L.P.*, slip op. at 6.

C. *Standing*

In addition, the regulations governing issuance and review of PSD permits require a petitioner to demonstrate that he or she has “standing” to challenge the permit decision. The Board has explained that:

Even if a petition for review has been timely filed, the merits of the petition may not be considered by the Board unless the petitioner has “standing” to assert the issues raised in the petition. * * * [A] petitioner has “standing” to pursue an appeal of the conditions of a final permit that are identical to the conditions of the draft permit only if the petitioner filed timely comments on the draft permit or participated in the public hearing on the draft permit.

* * * A petitioner who failed to file timely comments on a draft permit or participate in the public hearing will only have standing to pursue an appeal to the extent that the conditions in the draft permit are changed in the final permit. * * * This requirement is imposed in order to “ensure that the Region has an opportunity to address potential problems with the draft permit before the permit becomes final.”

Envotech, L.P., slip op. at 6 (quoting *In re Beckman Production Services*, 5 E.A.D. 10, 16 (EAB 1994)).

VDEQ alleges that petitioner William Reese (Petition No. 96-5) neither filed comments on the draft CCC permit during the public comment period, nor participated in the public hearing held on January 9, 1996. VDEQ has provided the Board with portions of the administrative record concerning Mr. Reese's alleged lack of standing to petition for review. VDEQ's Response to Petition No. 96-5 at 1 (citing attendance record from January 9, 1996 public hearing and index of comments received on draft permit). Mr. Reese's petition does not claim or demonstrate that he either filed comments on the draft permit

or participated in the public hearing, nor does the petition purport to relate to changes from the draft to final permit. *See* Petition No. 96-5. Based on the record before the Board, it does not appear that Mr. Reese has fulfilled the regulatory prerequisites to having standing to petition for review of VDEQ's decision. Accordingly, Mr. Reese's petition must be dismissed for lack of standing.⁸

D. The Merits of the Remaining Petitions

The remaining three petitions for review raise numerous objections to VDEQ's permit decision. We will address the objections in the approximate order in which they appear in the petitions.

1. Alleged Health and Environmental Risks

All petitioners contend generally that emissions from, and other effects of, the proposed CCC facility will pose unreasonable health risks to citizens in the surrounding communities and will potentially harm the surrounding ecosystem. For example, petitioner Elizabeth Trader (Petition No. 96-2) alleges that:

[CCC plant] emissions will aggravate asthma and other breathing problems in humans especially children and elderly people. They are also connected to numerous cancers. Many of these emissions are carcinogens ! New evidence has just been known that these chemicals can effect the endocrine [sic] system of people *and* animals which may account for the *dramatic* increase in cancers such as breast and testicular.

Petition No. 96-2 at 1 (emphasis in original). Ms. Trader also contends that the plant will generate harmful electromagnetic fields, and result

⁸We note that the objections to the CCC permit raised in Mr. Reese's petition (alleged negative impact on human health and the environment) are raised in the remaining three petitions as well.

in a rise in infectious diseases due to contribution to global warming . *Id.* at 3-4. In the same vein, petitioner Dorothy Bonney (Petition No. 96-3) states that:

We who live in this area are outraged that our governing bodies are allowing [CCC] to build a huge 400 megawatt power plant in an area so delicate in nature and so populated. [The region] is too delicate to allow that huge plant to be built.

Petition No. 96-3 at 1. Petitioner Marvel Wimbrow alleges that:

I became an asthmatic for the first time seventeen years ago * * *. Since then I have become allergic to many things including airborne pollutants. Asthma has increased 66 per cent since 1980 and I am very concerned about the pollution that this [p]eaker plant will be emitting. [CCC]'s permit allows 1218.3 tons of [n]itrogen oxides to be dumped into the atmosphere during a one year period.

Petition No. 96-4 at 1.

While the Board endeavors to construe petitions for review broadly, especially when they are filed by persons unrepresented by counsel, the petitioners' general allegations that chemicals emitted by the plant and other effects of plant operation will pose unreasonable risks to human health and the environment do not provide sufficient information or specificity from which the Board could conclude that VDEQ clearly erred in issuing the permit or in establishing the conditions contained in the permit. *See Puerto Rico Electric Power Authority*, slip op. at 4; *Genesee*, 4 E.A.D. at 867-68. Furthermore, the petitions do not identify the specific permit conditions being challenged. *See id.*; *In re LCP Chemicals*, 4 E.A.D. 661, 665 (EAB 1993). Except with respect to the control technology required to minimize emissions of nitrogen oxides (addressed in more detail below), the petitions do not attempt to explain how VDEQ allegedly erred in establishing the

conditions of the permit, or how such an alleged error will lead to the adverse health and environmental effects predicted by the petitioners.

The Board appreciates petitioners' concern for the health and well-being of their community and environment. However, we emphasize that the overarching purpose of the PSD regulations and permitting requirements is to prevent significant degradation of air quality in areas that have attained the national ambient air quality standards. Petitioners have provided the Board with no basis to conclude that VDEQ's permit decision will lead to such significant degradation. In its response to comments received at the January 9, 1996 public hearing, and in its responses to these petitions, VDEQ has explained that it compared the predicted concentrations of regulated pollutants to be emitted by the plant with the applicable NAAQS (or the State "significant ambient air concentration" (SAAC) in the absence of a NAAQS), and determined that the predicted concentrations were well within the NAAQS or SAAC for each pollutant. VDEQ's Public Hearing Response (Mar. 6, 1996), at 1-2; VDEQ's Responses to Petitions No. 96-2, 96-3 & 96-4, at 1-2.⁹ The engineering analysis performed by VDEQ in connection with its permit review further explains that:

CCC had submitted an air quality impact analysis in support of their application. It was concluded that the source adhered to the approved modeling protocol and fulfilled all federal and State requirements related to PSD air quality analyses. Modeling results *** indicated that the impacts of all criteria pollutants were well below EPA's significant

⁹According to VDEQ, the proposed plant will emit nitrogen oxides, sulfur dioxide, total suspended particulate, particulate matter less than 10 microns, carbon monoxide, volatile organic compounds, sulfuric acid mist, nickel, formaldehyde, lead, and beryllium. VDEQ's Responses to Petitions at 1. A comparison of the predicted concentrations and the NAAQS or SAAC for each pollutant is found in Attachment D to VDEQ's Responses to Petitions. This comparison confirms VDEQ's statement that all predicted levels are well below the applicable NAAQS and SAAC.

impact criteria and consequently, a PSD Increment Consumption Analysis (ICA) and a National Ambient Air Quality Standards Analysis (NAAQSA) was not required.

Engineering Analysis at 7.¹⁰ Petitioners have not alleged that the emissions anticipated from the CCC plant will exceed any applicable PSD increment, NAAQS, or SAAQ, and have provided no information that suggests that VDEQ's determination was erroneous. Accordingly, review on the basis of this issue must be denied.¹¹

2. *Alleged Impact on Visibility and BACT Analysis*

¹⁰"ICA" and "NAAQSA" refer to the "full impact analysis" that is required when preliminary modeling shows that the ambient concentrations of a particular pollutant exceed prescribed significant ambient impact levels. Draft Manual at C.25. A "full impact analysis" would consider emissions from the proposed source, as well as existing sources of air pollution and residential, commercial, and industrial growth that accompanies the new source. *Id.*

¹¹For the same reasons, we reject petitioner Elizabeth Trader's contention (Petition 96-2 at 2, 5) that the facility will pose an unacceptable risk to children attending nearby schools or to a migrant worker's camp near the proposed site. There has been no showing that emissions from the plant will pose any health risks, to sensitive populations or otherwise. Further, we must reject Ms. Trader's unsupported allegation that the cumulative effect of the CCC plant's emissions, in light of existing sources of chemical emissions such as agricultural spraying and nearby industrial facilities, will harm human health and the environment. Petition No. 96-2 at 2. In its response to comments, VDEQ explained that the impacts expected from the CCC plant were so minimal that multi-source modeling was not required. See VDEQ's Public Hearing Response at 3; Draft Manual at C.24-C.25 (explaining that full impact analysis for a particular pollutant is not required "when emissions of that pollutant from a proposed source or modification would not increase ambient concentrations by more than prescribed significant ambient impact levels ***."); see also *supra* n. 10 and accompanying text. Ms. Trader merely reiterates a comment on cumulative emissions made during the public hearing, without explaining why the State's response to that comment was in error. Accordingly, we deny review on the basis of this issue. See *Envotech, L.P.*, slip op. at 11 (rejecting objections in petitions that merely reiterate earlier comments, without explaining why Region's response is erroneous).

Two petitioners allege that the CCC plant will cause visibility problems in the Assateague Island National Seashore and Chincoteague National Wildlife Refuge, as well as negatively impact the Chesapeake Bay, and that VDEQ should have required the use of high-temperature selective catalytic reduction (SCR) as BACT for the project in order to prevent these impacts in the Class II areas. In particular, petitioner Elizabeth Trader contends that:

The National Park Service has stated in a letter that the emissions from this plant will cause a visibility problem in the Chincoteague National Wildlife Refuge. They also stated that these emissions may be detrimental to the health of the Chesapeake Bay. * * * CCC was asked by the EPA to use [SCR] equipment because of these problems * * *. I feel because we are in an extremely fragile environment * * * CCC should be *made* to use this equipment if constructed. The chemicals will be dangerous to our wildlife.

Petition No. 96-2 at 2. Petitioner Dorothy Bonney alleges that “The CCC will not even be required to use improved methods in their emissions. * * * Now too much nitrogen oxide will be allowed by this plant.” Petition No. 96-3 at 2. In issuing the permit, VDEQ determined that BACT for the control of nitrogen oxides was water injection. *See* “Fact Sheets for Commonwealth Chesapeake Corporation” at 3 (attached to Petition No. 96-2). Using this control technology, the permit would allow CCC to emit 1218.3 tons per year (tpy) of nitrogen oxides at a rate of 42 parts per million (ppm) at base load and 65 ppm at peak load. *Id.* at 2. In conducting its BACT analysis, VDEQ rejected the use of SCR as BACT for nitrogen oxides, on the basis that although SCR was technologically feasible and would further reduce nitrogen oxides emissions, it was not economically feasible for the CCC plant because the technology would be “prohibitively costly”. Engineering Analysis for CCC PSD Permit Application at 11.

Petitioners' claims concerning visibility and impact on the Chesapeake Bay stem from comments filed by U.S. EPA Region II I

and by the National Park Service (NPS) with respect to CCC's initial BACT analysis for nitrogen oxides.¹² Region III provided comments to VDEQ that recommended high temperature SCR as BACT for NOx emissions. In particular, the Region commented that high temperature SCR had been applied as BACT in a PSD permit issued to the Puerto Rico Electric Power Authority (PREPA) for a project involving three 83-megawatt turbines firing 0.15% sulfur distillate fuel oil. *See* Comments of William Browne, Region III Environmental Engineer, Attachment 8 to VDEQ's Response to Petition No. 96-2. The Region's comments stated that "[a]dvances in the state-of-the-art of high temperature SCR catalysts demonstrate that NOx emissions from the simple cycle combustion turbine [CCC] project can be reduced cost effectively by 1000 tpy." *Id.*¹³

The NPS submitted two letters to VDEQ commenting on the conditions of the proposed CCC permit. In a letter dated December 7, 1995, the NPS "agree[d] that water injection represents [BACT] to minimize [nitrogen oxide] emissions from this facility, however, we do not agree that [65 ppm] for peak load conditions is an appropriate BACT emission limit for water injection technology." Letter from NPS to VDEQ, at 1-2 (Dec. 7, 1995). The letter stated that while the proposed facility would have "negligible" impact on the Shenandoah National Park (a Class I area), NPS was concerned about the project's potential impact on the Assateague Island National Seashore (NS), the Chincoteague National Wildlife Refuge (NWR), and the Chesapeake Bay. *Id.* at 2. In particular, the NPS commented that it had performed a visibility analysis that indicated that at both the peak rate (65 ppm) and base load rate (42 ppm), visible plumes could impact Assateague

¹²We note that neither Region III nor NPS elected to appeal VDEQ's decision not to require SCR as BACT for the CCC plant, as they had a right to do pursuant to 40 C.F.R. § 124.19. Region III declined the Board's invitation to provide comments on the petitions for review that were filed.

¹³The Region's comments did not include a cost analysis of SCR as BACT for the CCC plant.

Island NS and Chincoteague NWR during certain wind conditions. *Id.*¹⁴ The NPS stated that a peaking facility in Georgia was required to meet a BACT limit of 25 ppm using water injection, and that a 25 ppm emission rate “greatly reduces the magnitude and frequency of potential visible plume impacts in these Class II areas.” *Id.* at 3. The NPS suggested that, at a minimum, VDEQ “require a NO_x limit of 42 ppm at *all* loads for the turbines Commonwealth Chesapeake has chosen.” *Id.* at 2 (emphasis in original). The NPS also suggested that a lower NO_x limit would minimize the contribution of the CCC plant to nitrogen loading in Chesapeake Bay.

VDEQ responded to the first NPS comment letter by way of a reply dated January 10, 1996. *See* Attachment 9 to VDEQ's Response to Petition No. 96-2. With respect to the 25 ppm NO_x limit which the NPS said had been achieved by a plant in Georgia, VDEQ noted that the limit was actually based on using gas as fuel, and not oil. VDEQ stated that based on information available in EPA's BACT Clearinghouse, the limits established in the CCC proposed permit were valid. *Id.* at 1. VDEQ further stated that a visibility analysis was only required for Class I areas; that the permit's 10% opacity limit would not allow CCC to release any visible plume; and that, when overall emission impacts were considered, implementation of the CCC project would substantially decrease NO_x and SO₂ emissions because the plant would displace some generation from existing sources having higher emission rates than the rates proposed for CCC. *Id.* at 2. VDEQ stated that the ground level concentration of NO_x was predicted to be only 0.311 Fg/m³, and that only a fraction of that would go into the Bay. *Id.*

¹⁴The Clean Air Act provides that, notwithstanding that the emissions from a proposed facility do not cause or contribute to exceedances of the Class I increment in an area, a permit may not be issued where the FLM demonstrates to the satisfaction of the State that the facility's emissions will have an adverse impact on “air quality related values,” including visibility, at a Class I area. Clean Air Act § 165(d)(2)(c)(ii), 42 U.S.C. § 7475(d)(2)(c)(ii); *see also* 40 C.F.R. § 52.21(p)(4). A permit issuer is required to “consider” a visibility analysis performed by the FLM that shows that a new source may adversely impact visibility in a Class I area. 40 C.F.R. § 52.21(p)(3). No similar consideration is mandated for a visibility analysis performed with respect to a Class II area. *See id.*; *see also infra* n. 18.

at 2. Again, VDEQ stated that the effect of the project should be a n overall decrease in nitrogen loading to the Bay, because the plant would displace power generated from existing sources with higher emissions levels. *Id.* at 2.

In a second comment letter dated April 12, 1996, the NP S advised VDEQ that:

[W]e learned [that] EPA infor med the VDEQ that high temperature selective catalytic reduction (SCR) catalysts are now available that could be used t o control NOx emissions from the [CCC] turbines. * * * Our calculations indicate the NOx emission rate wit h SCR would be 26.2 ppm, close to the 25 ppm rate we modeled. We, therefore, urge you to require [CCC] to install SCR on the turbines, as even a 6 percen t increase in NOx emissions control would substantially reduce the magnitude and frequency of visible plum e impacts * * *.

Letter from NPS to VDEQ at 1-2 (April 12, 1996). The NPS stated that even though a visibility analysis was not required for Class II areas , VDEQ should consider the effect of visible plumes which could detract from visitors' enjoyment of the Assateague Island NS and Chincoteague NWR. *Id.* at 1. The NPS also contended that wh ile a 10% opacity limit might prevent visible plumes at the stack, it would not preclude NO x conversion and visible plume formation downwind. *Id.*

VDEQ responded to the second NPS comment letter in a response dated June 5, 1996. Letter from VDEQ to NPS (Attachment 10 to VDEQ's Response to Petition No. 96-2). VDEQ explained tha t it had forwarded the information received from EPA on high - temperature SCR to CCC for consideration, and had evaluated th e information itself. Based on its evaluation, VDEQ agreed with EP A that the type of SCR suggested by EPA (using zeolitic catalysts) could be operated at the temperatures expected in the CCC turbines . However, based on CCC's cost estimates and VDEQ's BACT analysis,

VDEQ concluded that the technology was “prohibitively costly” at an incremental cost of over \$8500 per ton of pollutant removed (compared with the \$2202 incremental cost per ton at the PREPA facility), and did not represent BACT because it was economically infeasible. *See id.* at 1.¹⁵

The record includes a detailed cost analysis prepared by CCC, comparing the incremental cost effectiveness of SCR technology for its project with that of the PREPA facility.¹⁶ Letter from CCC to VDEQ (April 22, 1996). CCC pointed out in its cost analysis that while the technology has not yet been applied to facilities similar to CCC, the smaller PREPA plant “which has a maximum exhaust flow substantially lower than our units would be the closest in size when it is put into service.” *Id.* at 1. CCC further noted that the PREPA facility is permitted as “a baseload facility rather than a peaking

¹⁵CCC's cost estimate concluded that the incremental cost of adding SCR technology was over \$10,000 per ton, but VDEQ discounted some of CCC's cost assumptions in performing its own BACT analysis. *See Engineering Analysis* at 10.

¹⁶“Incremental cost effectiveness” (*i.e.*, dollars per incremental ton removed) is calculated by dividing the incremental cost of a control option (cost of control option minus cost of next control option) by the incremental rate of emissions controlled (next control option emission rate minus control option emission rate). *See Draft Manual* at B.41. In this instance, SCR is the “control option” and water injection is the “next control option”. The cost is calculated by dividing the difference between the total annual costs for SCR and the cost of water injection (\$8,308,756 SCR cost - \$0 water injection cost = \$8,308,756, in VDEQ's calculation) by the difference between emission rates for water injection and SCR (1218.3 tpy water injection emission rate - 243.66 tpy SCR emission rate = 974.64 tpy additional emission reduction through the use of SCR). Because a water injection system is an integral component of the combustion turbine, there is no additional cost associated with use of that technology for NOx removal. *See Engineering Analysis* at 11. Thus, the incremental cost effectiveness of SCR technology for the CCC project is calculated as follows:

$$\frac{\$8,308,756}{1218.3 - 243.66} = \$8524.95 \text{ (incremental cost per ton of pollutant removed)}$$

Id.

facility, which substantially decreases unit removal costs for the PREPA facility. * * * Costs are higher for our units because they are substantially larger than the PREPA units. * * * [T]he PREPA units would be run on a continuous basis. In contrast, our units would rarely operate as much as 400 hours [each] per year. The substantial capital costs combined with infrequent operation of our facility, result in much high [sic] unit removed expenses for our plant than for PREPA.” *Id.* The record includes CCC's line-by-line cost estimates for direct and indirect costs associated with implementing the SCR technology (assuming the CCC plant operates for the maximum number of hours allowed under the permit, 2000 hours per turbine per year), together with the line-by-line estimates for the PREPA plant (assuming a continuous operation of 8760 hours per year). *Id.*; Letter from CCC to VDEQ (April 24, 1996) (with PREPA costs attached). In performing its analysis, CCC adopted the same estimating factors used by PREPA in performing its analysis, with certain exceptions reflecting differences in the size and type of the two projects. *See id.* Based on CCC's analysis, VDEQ concluded that installation and operation of SCR technology would result in \$8,308,756 in increased annual expense, while reducing NOx emissions by 974.64 tpy, for an incremental cost per ton of NOx removed of \$8524.95. Engineering Analysis at 11.¹⁷ In contrast, the PREPA analysis showed that SCR technology at that facility would result in an increased annual expense of \$4,052,582, while reducing NOx emissions by 1,840 tpy, for an incremental cost per ton of NOx removed of \$2202. Letter from CCC to VDEQ (April 24, 1996), attachment at 2.

Neither petitioner has offered any specific information that suggests that VDEQ erred in establishing the NOx emissions limits in the permit or in concluding that high-temperature SCR was not BACT

¹⁷*See supra* n. 16. CCC notes that the incremental cost it calculated is based on a full 2000 hours per unit per year of operation. Under “likely operating conditions” as a peaker power plant, CCC contends that a more realistic estimate of usage is between 200 and 400 hours per unit per year, with costs per ton of NOx removed rising to the range of \$50,000 to \$100,000. Letter from CCC to VDEQ (April 24, 1996) at 3.

for the project because it was not cost-effective.¹⁸ In the absence of any information in the record that contradicts VDEQ's findings with respect to CCC's cost analysis, we cannot say that VDEQ clearly erred in concluding that high-temperature SCR was not BACT for this project because of the high costs estimated to implement the technology. The Board has explained that:

In determining whether BACT for a pollutant should be based on a particular control technology, the permit issuer must consider the economic impacts of using the control technology. *See* 40 C.F.R. § 52.21(b)(12) (BACT definition). The determination of economic impacts focuses on whether the control option under consideration would be cost-effective, measured in terms of "the dollars per tons of pollutant emissions reduced." New Source Review Workshop Manual at B.31. * * * The "average cost-effectiveness" of a particular technology is calculated by dividing the average annualized cost of installing and operating the control technology by the tons per year of pollutant that the technology would remove. *Id.* at B.37. This cost-effectiveness figure is then compared with what other companies in the same industry have been required to pay in recent BACT determinations to remove a ton of the same pollutant. In most cases, a control option is determined to be economically achievable if its cost-effectiveness is within the range of costs being borne by other sources of the same type to control the pollutant. *Inter-Power* at 7; New Source Review Workshop Manual at B.44. "In the absence of unusual circumstances, the

¹⁸As to visibility effects, the regulations do not require VDEQ to perform a formal visibility analysis in Class II areas. *See* 40 C.F.R. § 52.21(p)(3). Nevertheless, VDEQ did consider and address potential visibility impacts, and concluded that the permit's NOx emissions limits were appropriate in light of the permit's 10% opacity limit, and the anticipated overall NOx reduction due to the project's implementation.

presumption is that sources within the same source category are similar in nature, and that [they can bear the same] costs and other impacts.” *Id.* at B.29.

Masonite Corp., 5 E.A.D. at 564 (also noting that incremental cost-effectiveness should be calculated). In this instance, the cost analysis prepared by CCC and reviewed by VDEQ showed that CCC's incremental costs in implementing high-temperature SCR would be nearly four times the incremental per-ton costs incurred by the only other similar source to have utilized the technology. Petitioners have the burden of proof of establishing that this determination is clearly erroneous. Yet, they have provided no information that suggests that CCC's cost analysis overstates the cost of the technology or that a \$8500 per ton figure is “within the range of costs being borne by other sources of the same type to control the pollutant.” In these circumstances, it was not clear error for VDEQ to reject high-temperature SCR as BACT for NOx emissions from the CCC project.¹⁹

¹⁹We note that both VDEQ and CCC focused their cost analyses on the *incremental* cost effectiveness of SCR rather than the *average* cost effectiveness. Both average and incremental cost effectiveness should be considered in evaluating a control option. See Draft Manual at B.36, B.41 (“The incremental cost effectiveness should be examined in combination with the average cost effectiveness in order to justify elimination of a control option.”). Average cost effectiveness reflects the total annual cost of a control option, divided by “annual emission reductions.” *Id.* at B.36. Annual emission reductions are the difference between the baseline (uncontrolled) emission rate and the control option emission rate. Utilizing this formula, VDEQ calculated the average cost effectiveness of SCR as follows:

$$\frac{\$8,308,756 \text{ (cost of SCR)}}{7809.60 \text{ (baseline emission rate)} - 243.66 \text{ (SCR emission rate)}}$$

Engineering Analysis at 11. This formula yielded an “average cost effectiveness” figure of \$1098.18 per ton. *Id.* There has been no contention that this figure undercuts VDEQ's conclusion that SCR is not BACT for the CCC plant, and in any event, based on the record, the figure appears unrealistically low. VDEQ's calculation does not account for the fact that significant emission controls are achieved with the water injection technology that is inherent in the combustion turbines prior to adding SCR. The Draft Manual explains
(continued...)

¹⁹(...continued)

that:

When calculating the cost effectiveness of adding post process emissions controls to certain inherently lower polluting processes, baseline emissions may be assumed to be the emissions from the lower polluting process itself. In other words, emission reduction credit can be taken for use of inherently lower polluting processes.

Draft Manual at B.37. If the baseline emission rate in the above formula is adjusted to reflect emissions after water injection (*i.e.* a baseline emission rate of 1218.30 tons per year rather than the uncontrolled rate of 7809.6 tons per year) then the formula yields an average cost effectiveness for the SCR technology that is identical to the incremental cost effectiveness.

3. *Alleged Contribution to Acid Rain*

Petitioner Elizabeth Trader contends that CCC plant emissions will contribute to harmful acid rain. Petition No. 96-2 at 2. In its response to comments received during the public hearing, VDEQ explained that the permit conditions represented BACT for sulfur dioxide (use of 0.05% sulfur fuel) and NO_x (use of 0.05% fuel bound nitrogen fuel and water injection), chemicals that are precursors to acid rain. VDEQ's Public Hearing Response at 2. VDEQ went on to state, relative to the Clean Air Act's (CAA) acid rain provisions:

[T]he Clean Air Amendments of 1990 *** focused on coal utility boilers to combat acid rain. Phase I of the Acid Rain provision affects units emitting 2.5 pounds of SO₂ per million British thermal units (lb/mmBtu). Phase II affects units emitting 1.2 lb/mmBtu. CCC will emit 0.3 lb/mmBtu. Coal boilers emit over 30,000 tons of SO₂ and 7800 tons of NO_x. The combustion turbines at CCC are much cleaner units, with proposed emissions of 258 tons of SO₂ and 1218 tons of NO_x.

Id. See also CAA § 401 *et seq.*, 42 U.S.C. § 7651 *et seq.*

On appeal, the petitioner has merely reiterated the comment made during the public hearing, without explaining why the State's response is clearly erroneous. Review on the basis of this issue must therefore be denied. See *supra* n.11; *Envotech, L.P.*, slip op. at 11.

4. *Non-Air Quality Related Impacts*

Petitioners Elizabeth Trader and Marvel Wi mbrow contend that construction of the plant will result in depletion of ground water resources. See Petition No. 96-2 at 3, Petition No. 96-4 at 1. Petitioner Elizabeth Trader also contends that construction of the plant will convert agricultural land to industrial use; that the plant will be excessively noisy; and that the community is not equipped to manage a potential fire at the plant. Petition No. 96-2 at 2-3. As to

groundwater impacts, VDEQ has explained that consumption of groundwater by CCC will be addressed through review of a "groundwater withdrawal application" from CCC. *See* Letter from VDEQ to Petitioner Dorothy Bonney (March 15, 1996). As this concern does not directly implicate the conditions of CCC's permit, or significantly affect the BACT determination, and in any event will be addressed in a separate proceeding, it was not clear error for VDEQ to elect not to address it in the PSD permit proceeding. As to petitioners' other non-air quality related concerns, VDEQ has referenced a State policy pursuant to which non-air quality related concerns such as "the suitability of a proposed facility to a specific location" will be determined by local planning and zoning authorities, while VDEQ confines its permitting inquiry only to air quality related concerns. *See* VDEQ's Response to Petition No. 96-2, Attachment 14 ("Virginia State Air Pollution Control Board Suitability Policy Statement"). To the extent that the State has discretion to consider non-air quality related concerns as part of the PSD permit review process, we cannot say that VDEQ clearly erred in this case in deferring to the State policy and choosing to leave those issues to be addressed through the local planning and zoning processes. Review on the basis of these issues must therefore be denied.

III. *Conclusion*

For the foregoing reasons, Petition No. 96-5 is hereby dismissed for lack of standing. Review of Petitions 96-2, 96-3 and 96-4 is hereby denied for the reasons stated above.

So ordered.